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TREES IN OUR DESERTS

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CAPTAIN JAMES COOK would be the logical choice if *Pacific Discovery* were to elect its official hero among Pacific discoverers. Pursuant to this idea, it is very gratifying to note that the current revival of interest in Cook and his Pacific voyages is being climaxed by a splendid publishing venture which deserves our special announcement and commendation. We refer to the new, definitive, and only edition of James Cook's own journals from the manuscripts in his own hand. The provenance of this four-volume work is especially fortunate, there being no more eminent auspices possible: "Cambridge: Published for the Hakluyt Society at the University Press." The editorship is equally distinguished. *The Journals of Captain James Cook on his Voyages of Discovery* are edited from the original manuscripts, by J. C. Beaglehole with the assistance of J. A. Williamson, J. W. Davidson, and R. A. Skelton. Two decades ago a spirited book, *The Exploration of the Pacific*, established the New Zealander Dr. Beaglehole at the top in this field. The book closed with Cook's voyages; and in the present edition of *The Journals* Malcolm Letts, the Hakluyt Society's president, says in general preface: "That Cook has at length found an editor worthy of his theme will be evident to all readers of these volumes. Dr. J. C. Beaglehole . . . has for many years dedicated himself to the study of Cook with a singleness of purpose, a generosity of spirit, and a historical perceptiveness of which this edition is the fruit. The Hakluyt Society counts itself privileged in that Dr. Beaglehole's work now appears over the Society's imprint."

The first volume, *The Voyage of the Endeavour 1768-1771*, together with the *Portfolio* "containing 88 reproductions of original charts and views drawn on the three voyages," is now at hand. Proper review will be attempted later on; but we cannot refrain from some effort at once to convey a feeling of the bibliographical importance and the consummate craftsmanship of the whole work adumbrated by these first issued parts. Dr. Beaglehole's General Introduction reads like a brilliant concentration of his 1934 book — the background of all previous Pacific discovery is essential to the understanding and appreciation of Cook. Indeed, the preliminaries to the Journal itself, of *The Voyage*, leave nothing unfulfilled from the standpoint of complete scholarship, and should prove intrinsically interesting to the Cook enthusiast as well as absolutely indispensable to all future students of the hero and his place in the annals of Pacific discovery. Congratulations to Hakluyt Society and Cambridge University Press alike for making this work available to the literate world.

HARRY C. JAMES speaks to desert conservation from deepest personal convictions backed by a lifetime of wilderness experience; he is also president of the Desert Protective Council. Another facet of his interests is revealed by his book *The Hopi Indians*, just received from Caxton and noticed briefly on page 32. . . .

¶ The combination of Lucile and Harold Weight's exquisite photographs with the authoritative legends by Dr. Ira L. Wiggins (president of the California Academy of Sciences, director of the Natural History Museum of Stanford University) makes our "Desert Trees" feature one of the most valuable contributions PD has made to knowledge of Western nature. . . . ¶ It is a privilege to present another of the aerial photos of Bill Garnett of Altadena, which stand alone for their esthetic and technical quality. . . . ¶ Lewis Wayne Walker is known from Tucson to San Diego (just as a starting point) for his energetic activities as free-lance naturalist, guide, writer, and photographer. In the last few years he has worked closely with the director, William H. Woodin, to create the new Arizona-Sonora Desert Museum near Tucson. . . . ¶ Dr. William R. Halliday, now on active naval duty in the Pacific, is one of the authors of *Celebrated American Caves* (see Reviews, p. 30). . . . ¶ Thanks to Joseph Wood Krutch and William Sloane Associates for gracious permission to use the excerpts from *The Voice of The Desert*.
D.G.K.

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THE COVER

WEIRD SILHOUETTES are a trade-mark of desert sunset views, and gnarled ironwood skeletons such as this take their place with Joshua trees among favorite camera subjects. This photo by Lucile and Harold Weight of Twentynine Palms in the California desert introduces our special feature (see page 4).

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KEEP THE DESERT LIVING

THE ROAR of a motor in the sky, the earthquake boom of a jet plane breaking the sound barrier, the crash and snap of a bulldozer ripping out Joshua trees and cacti, the rattle and whine of small arms fire, the earth-shaking thunder of artillery and of the atom bomb — these are the sounds that today on the deserts of the Southwest constantly assault the ear and disprove Thomas Hood's "There is a silence where hath been no sound, — in wide desert where no life is found."

All too frequently a desert traveler pulls to one side of the highway to lunch under a cottonwood or a piñon pine or a juniper to find a landscape littered with those ill-favored "flowers" of present-day civilization: the beer can, the varicolored toilet tissue, and the torn pages from a gaudy Sunday comic supplement. Only too arant is the life — of a sort — found in the desert today.

Thirty years ago the Southwestern deserts were generally regarded as worthless wastelands, as Dantesque landscapes connoting tragic death by thirst, by poisonous reptile bite, and by the prick of unfriendly cactus thorn. It was common practice for train passengers to draw the shades, not only to shut off the glare and heat of the sun but also to blot out the abhorrent desert scene. Now the ambition of many of those same passengers is to retire to some desert community and build a home from which they can enjoy the very view so shunned a few years before. "The desert's awful frame" has lost its awe for many.

The desert has become fashionable, and with the new vogue have come forces of destruction. Like some of the disease destroying micro-organisms, man tends to give off by-products that bid fair to poison even the environment he claims to cherish. Witness Yosemite Valley. To the very landscape that so intrigued him man has come in such numbers and with so little genuine reverence for the beauty that first snared his interest that he has virtually killed the thing he professed to love. One wonders if eventually the desert will truly rejoice even though it may blossom as the rose.

Conspicuous among man's desert by-products is the smallpox of "jackrabbit homesteads," those five-acre tracts which have been made available by the thousands by the Federal government. Undoubtedly they are verily gifts from the gods to tired and tense dwellers in modern Western cities. But — would it be sacrificing too many of our individual prerogatives if we agreed to some sort of control over their location and their architecture? The U. S. Forest Service exercises such control over structures on lots and recreation sites under its jurisdiction, and there has been little, if any, objection to this control.

The late Frank A. Vanderlip once remarked that he believed "in capital powers for architects and also in capital punishment for architects." It would be inter-

esting to know how many magenta and green shacks would never have been erected among the cacti and ocotillo if owners of homesteads had not been required to make "improvements" in most cases without benefit of architects of any kind. Possibly we are wrong in demanding that a man taking up a jackrabbit homestead be required to improve it. Many of these sites are used only for visits with the family trailer. A simple dirt road into the site is really all that such use demands.

Many of the commercial subdivisions now checkerboarding the desert seem fated, like so many of the region's flowers, to a very short blooming period. Areas have been subdivided where water can be made available only by pumping from wells drilled deep into the water table that is the accumulation of centuries. With increasing use the water level in such wells is steadily lowered, the water table dropping with the rising of the graph that indicates the sales of lots. The promoter watches in fear lest the first well go dry before the last lot is sold.

It is only fair to make clear that not all subdividers are wildcat promoters. Ethical real estate dealers decry the well-watchers. But far too many men and women in both these classifications have little real knowledge of the desert. Too few of them realize how fine is the line between survival and extinction in these arid lands.

Many elaborate developments have been made on alluvial fans which spread out into the desert areas from precipitous mountains. These areas are occasionally subjected to terrific cloudbursts which can bring devastating property damage — this has already occurred to some projects fringing on Coachella Valley. It is not preposterous to assume that some day considerable loss of life may result from such a cataclysm.

Recent phenomenal developments in both Imperial and Coachella valleys have brought about spectacular changes in the desert scene. Thousands of acres of seemingly useless land have been made agriculturally productive. The great ranch gardens of this region are one of the spectacular sights of the Southwest, a dramatic and often beautiful demonstration of man's ability to make the desert blossom as the rose. Spread out in all directions are the boom-town cities that service this rich agricultural area.

These remarkable developments, however, are beginning to exact a price. The water table of the lands about the Salton Sea is rising at an almost fantastic rate, and in some places the water level is only two or three feet below the surface. Ranchers are being forced to expend large sums of money to drain lands that only yesterday were considered among the most arid in the Southwest.

The Salton Sea itself is rising at an alarming rate, varying from six to 15 inches in a year's time. Resorts established at sea level only a few years ago are now

entirely submerged. Gone are even the picturesque little mud pots at the south end of the Sea that so delighted visitors of yesterday. All of this is a matter of grave concern to ranchers in the region of Mecca and Brawley.

One of the most spectacular views in the Southwest was that to be had either from the escarpment of the San Jacinto Mountains or from the top of Santa Rosa Peak. From the latter point one could sometimes see even the summits of the San Francisco peaks back of Flagstaff in Arizona. It is only on rare days now that the relatively near Salton Sea is visible. Water vapor rising from extensive irrigation and the ever-rising Salton Sea plus fumes from automobile and other internal combustion engines nearly always obscure the view with an impenetrable haze. If the plan to build a tramway up the slopes of the San Jacintos ever does come to fruition the fabulous view that has been promised to its patrons may prove a novelty to be enjoyed only on those occasional days when proper winds sweep clean the smoggy air of Coachella and Imperial valleys.

It is probably too early to judge what effect these developments and these climatic changes may have on the indigenous plant and animal life of this area of California desert. But anyone who lives there can tell you of the astonishing increase in insect life. The gnats and mosquitoes of the lower valleys and the crickets of Palm Springs are already adding to desert folklore.

When Hoover Dam was completed and Lake Mead began to flood back into the desert the University of California sent Charles M. Bogert, now curator of reptiles and amphibians at the American Museum of Natural History in New York, to make a check of the animal life of the region. Later there will be a recheck to determine what changes in the ecology, if any, the presence of such a large body of water has made in what had hitherto been a particularly arid desert area. The results of these surveys should prove of great interest.

The extensive introduction of exotic plants and animals into the deserts of the Southwest has occurred so recently in most instances as to make impossible fair evaluation of its effect on native flora and fauna. The balance of nature is just as easily upset in the desert as anywhere else in the world. Our hope is that biologists in our Western universities and colleges will act as watchdogs of the desert scene so that we can be warned in ample time to rectify an unbalance that is in the making.

Already it is too late to save much that is native. Officers of the Cactus and Succulent Society of America tell me that many species of desert plants have been virtually obliterated because commercial dealers have carted them off by the truckload. A few months ago we encountered at the foot of a desert mountain a truck filled to the rim with a species of buckwheat. We

learned these were to be clipped and potted as "ming trees" by a Los Angeles dealer. We climbed the hill to find not a single specimen left!

Ruthless collectors, too, are contributing their share to denuding the desert. One thinks back to the days when the National Park Service began the administration of the Petrified Forest National Monument and prohibited visitors from picking up even small samples of petrified wood. There was considerable resentment over this ruling — the ground was covered with the stuff — why be fussy over one little souvenir?

Just outside the Monument a friend of ours had a large cattle ranch. One of its valleys was covered with brilliantly colored bits of petrified wood and hundreds of gigantic log sections. He suggested that we camp there and that each boy might have a few pieces to take home. We did this for two or three summers, and then an interval of about six years intervened before we went back. By that time we had to search diligently to find even a single piece of petrified wood. Our friend said he had been unable to stave off the numbers who came with trucks and cranes to cart off every piece of the wood no matter how small or how big.

The various organizations of rockhounds decry such greedy and selfish collecting and have worked diligently to educate their regular members against it. However, some of their clubs have had the ugly experience of having commercial collectors take out membership in their ranks, use this membership to gain a knowledge of good collecting grounds, and then exploit those grounds for the benefit of commercial dealers.

No, not even desert rocks are in inexhaustible supply.

For long it seemed that the desert wilderness would remain our last frontier, that the bighorn sheep, the Gila monster, the Joshua tree, the road runner, the kit fox, and the coyote would survive without question.

HARDLY MORE than two generations ago Americans first woke up to the fact that their land was not inexhaustible. Every year since then more and more has been said, and at least a little more has been done about "conserving resources," about "rational use" and about such reconstruction as seemed possible. Scientists have studied the problem, public works have been undertaken, laws passed. Yet everybody knows that the using up still goes on, perhaps not so fast nor so recklessly as it once did, but unmistakably nevertheless. And there is nowhere that it goes on more nakedly, more persistently or with a fuller realization of what is happening than in the desert regions where the margin to be used up is narrower.

First, more and more cattle were set to grazing and overgrazing the land from which the scanty rainfall now ran off even more rapidly than before. More outrageously still, large areas of desert shrub were rooted up to make way for cotton and other crops watered by wells tapping underground pools of water which are demonstrably shrinking fast. . . . Soon dust bowls will be where once was a sparse but healthy desert, and man, having uprooted, slaughtered, or driven away everything which lived healthily and normally there, will himself either abandon the country or die.

But it is becoming increasingly rare to hear the bird-trill of the Mohave toad — surely one of the most beautiful of desert sounds! And already the Western world is a little poorer because fewer coyotes voice their wild and thrilling song. (A parenthetical story here, though: Recently some cattlemen in Colorado set aside several hundred thousand acres of their ranges as "coyote sanctuaries" in recognition of the fact that the coyote, even with his truly amazing adaptability, is getting in short supply.)

Certainly it is right and proper that there should be commercial development of the deserts. No person of intelligence would want to see either Coachella Valley or Imperial Valley, for example, or the great productive areas of southern Arizona and of New Mexico, turned back to the descendants of Fig Tree John and to creosote and rattlesnake. But we can feel justified in demanding that development be intelligently and honestly planned for areas where it is suitable. Boards of supervisors and planning commissions of the desert counties should be made to feel their responsibility in this regard.

The legitimate or illegitimate — or shall we say *questionable* — development of arid lands for agriculture or for desert living does not pose the most serious threat to those lands and to the survival of certain species of plants and animals. The ruthless appropriation of desert lands by the armed services makes the most ambitious plans of "escrow Indians" fade into insignificance. A map of the southwestern states showing the land masses now under armed services control and those areas contemplated for withdrawal from public use presents a shocking picture indeed. Navy, Army, Air Force — each has made and is daily making its demands. So far as the desert is concerned the armed services seem never to have been unified.

Of course, one has only to read the daily paper in these days of cold war to realize that our defenses

must be kept up to date, efficient, and ready for any emergency. But the patchwork quilt of sweeping acreage now withdrawn by the armed services from all public use cannot but impress the layman with the extensive duplication of use. Even today's news recounts demands for from 450,000 up to 2,000,000 acres!

There should be a thorough Congressional inquiry into this use of desert lands by the armed services — use that will shut out the public for the foreseeable future. One hopes that some of these areas can be decontaminated and restored to the public domain. Such Congressional inquiry should consider (1) what future plans the services may have for withdrawal of desert lands; (2) conservation of desert life, both plant and animal, and the protection of scenic landscapes on lands under their control; (3) unified use of areas.

Arid lands are not expendable lands. They can be valuable lands from a recreational standpoint. Our growing population and the ever-increasing margin of leisure time demand more and more such areas. The line must be held so far as desert areas now set apart as national monuments or state parks are concerned. Constant nibbling away by leases, concessions, revision of boundaries, etc., etc., must be slowed down, if not stopped altogether. Furthermore, a survey should be made to ascertain if the areas now set aside for outdoor recreation in the southwestern states are adequate for the future needs of those states.

Are there national parks and national monuments and state parks that might well be extended? Are there national monuments that should be granted national park status? One thinks immediately of such desert monuments as Death Valley and Dinosaur. Should not some sort of national monument status be worked out for Arizona's Monument Valley? How about making the Hopi Indian reservation of northern Arizona with its beautiful Coal and Blue canyons into some sort of national monument with Old Oraibi, perhaps, rebuilt as a sort of Hopi Williamsburg?

The minute one begins to consider a few suggestions of this sort his mind is flooded with thoughts of all the spectacular places in the Southwest that deserve preservation, not least of these the desert areas. Let them blossom as the rose, but let them rejoice, too, in the security of survival.

We are enjoying nowadays the highest standards of living ever enjoyed by any people in history. Surely at this high point we can afford to sell one loaf of bread to buy ourselves a few white hyacinths for our souls. Moreover, people will come and pay good money to look at our white hyacinths, for our desert variety — Grand Canyon, Death Valley, Zion, Bryce, Capitol Reef, Organ Pipe, Saguaro, Joshua Tree, and all the rest — will not wilt and die unless we shamefully neglect them. They will continue to feast the eyes and souls of posterity if only we will safeguard them for wise and reverent use.

HARRY C. JAMES

There are places where the creosote bush is a more useful plant than cotton.

To the question why men will do or are permitted to do such things there are many answers. Some speak of population pressures, some more brutally of unconquerable human greed. Some despair; some hope that more education and more public works will, in the long run, prove effective. But is there, perhaps, something more, something different, which is indispensable? Is there some missing link in the chain of education, law and public works? Is there not something lacking without which none of these is sufficient? . . .

Might it not have something to do with nature's own great principle, live and let live? Might it not be that man's success as an organism is genuinely a success so long, but only so long, as it does not threaten the extinction of everything not useful to and absolutely controlled by him; so long as that success is not incompatible with the success of nature as the varied free thing which she is; so long as, to some extent, man is prepared to share the earth with others?

—JOSEPH WOOD KRUTCH, *The Voice of the Desert*
(Copyright 1955. See also page 15 and Reviews, page 29.)



SEVEN TREES OF THE DESERT

MANY READERS of *Pacific Discovery* have welcomed the shade cast by the scanty foliage of such desert trees as the ironwood, honey-pod mesquite, desert willow, and even at times the filmy smoke tree. Others may enjoy seeing what these trees look like if they, too, some day want to seek shade in one of our deserts. If you have not met these hardy inhabitants of a dry, sun-parched land, what better way to learn something about them, while you are waiting for a

desert trip, than through the medium of pictures?

The photographs here are of the commoner trees — or at times large shrubs — of the deserts of southeastern California and adjacent Arizona and northwestern Mexico. All of these trees save one belong to the bean family, as that family is broadly interpreted. The exception is the desert willow, or *Chilopsis*, which belongs to the *Bignonia* family. All of these trees have a few characteristics in common. Their leaves are much smaller than those of most trees growing in regions where

4

▲ Ironwood (*Olneya tesota*) — the ethereal pale pink, lilac, orchid, or shell pink flowers blend so perfectly with the pastel tints of the desert that trees in full bloom are inconspicuous at moderate distances. The gray-green, velvety calyces harmonize perfectly with the delicate hues of the sweet pea-like petals.

IRONWOOD

water is plentiful. All of them produce fruits in pods. All of them have fairly dense, hard heartwood. All are able to survive long periods of low water supply, although they meet drought conditions in somewhat different ways. All save the palo verde have rough, fissured or shredded bark; the palo verde is clothed in smooth, pale green velvet! The seeds of the desert willow are as thin as the combined thickness of a few sheets of paper, but have fringed wings that aid greatly in the dispersal of the seeds when desert winds are active. All the other seeds are hard, each covered with a very resistant coat, and will lie buried in sand or heaps of dry leaves for long periods without losing their vitality — unless eaten by pack rats, pocket mice, burros, or insects.

The ironwood tree gained its name because its heartwood is so dense that the uninitiated camper easily knocks a huge nick in the blade of his ax if he tries to chop the trunk into pieces for his campfire. The proper way to prepare this hard but rather brittle wood for the fireplace, stove, or campfire is with a husky swing of a heavy sledge hammer! Even the voracious termites are able to remove only the outer, comparatively soft sapwood of the ironwood.

In times of drought or other shortage of stock food, human inhabitants of the desert cut quantities of the branchlets, with attached leaves and seed pods, of the honey-pod mesquite, of the screw-bean mesquite, and of the palo verde to feed their saddle horses, pack animals, and cows. The sweet "packing" that surrounds each seed of the



The bark on mature branches and trunks of the ironwood tree splits into rough, scaly sections. Numerous insects and small desert lizards take refuge under the partially loosened scales. Young branches bear smooth, grayish bark. For a complete description see "Desert Ironwood" by Edmund C. Jaeger, *PD*, March-April, 1951, pp. 18-21.

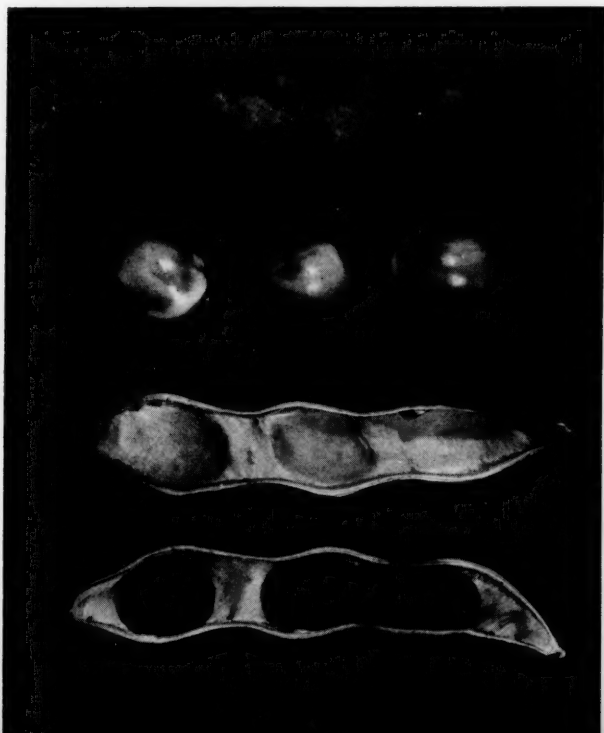
Photos by LUCILE & HAROLD WEIGHT

Text & captions by IRA L. WIGGINS

honey-pod mesquite is highly nutritious—although it also contains rather potent purgative substances — and is relished by desert-dwelling burros, cows, and horses — to say nothing of the scurrying nocturnal rodents!

There are many other facets to these jewels of our arid Southwest, but you will experience greater joy in discovering some of them yourselves than you would were all the available lore about them set forth here — even if space permitted a lengthy discourse!

Ironwood pods and seeds — immature pod, water-filled seeds, *above*; mature pod split open to show seeds, *below*. Small beetles attack many of the seeds, cutting precise circular holes to emerge from their larder home.



SMOKE TREE

➤ Smoke tree (*Dalea spinosa*) in Box Canyon, Riverside County, California.
At dusk these trees often give the ghostly illusion of smoke drifting
from a campfire — hence the popular name.

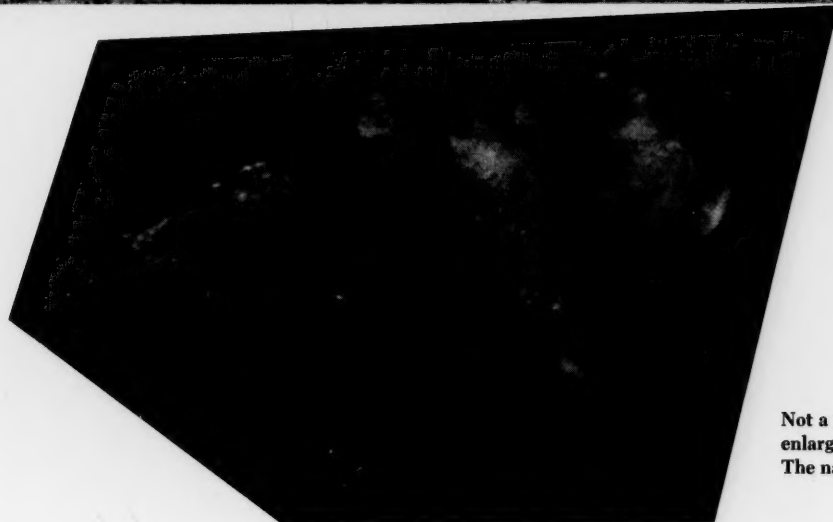
◀ The flowers of the smoke tree have deep blue to purple petals that
fade to pale blue as they dry. The smooth, elliptical swellings are glands
containing a pungent, oil-like substance and a yellowish or orange
pigment. Each smoke tree branchlet is spine-tipped.

▼ After the blossoms are gone, the gland-dotted, hairy seed pods
and the persistent calyces remain clinging to the branchlet.



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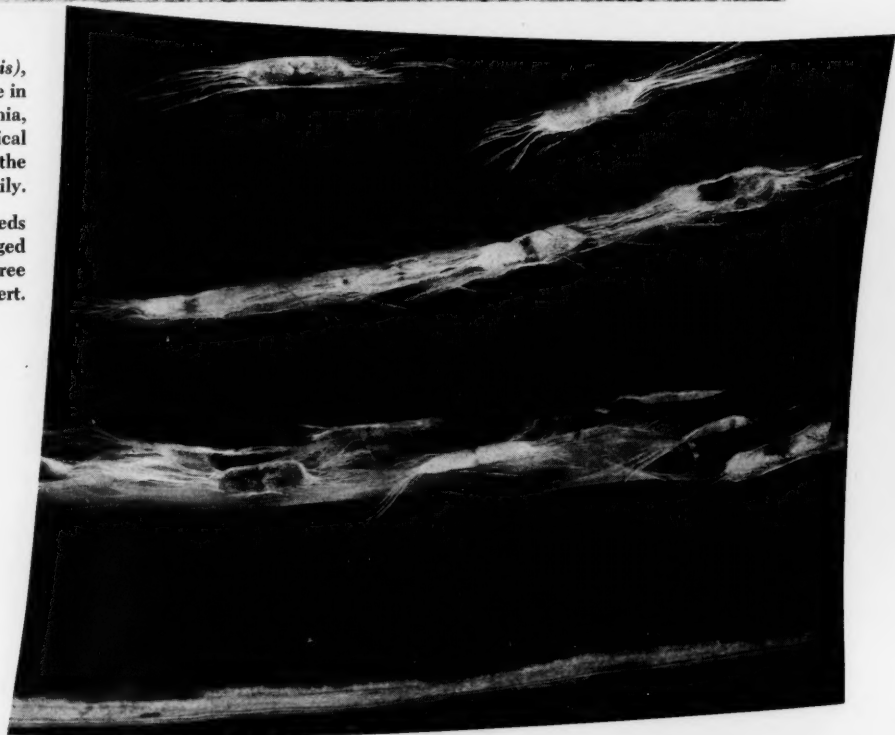


Not a tick-laden mouse — but a much
enlarged close-up of a smoke tree seed pod.
The naked seed is shown above.



↑ Desert willow (*Chilopsis linearis*), also called desert orchid — this one in Box Canyon, Riverside County, California, is an exceptionally large and symmetrical representative of this member of the Bignonia family.

➤ Open pod and silkily fringed seeds of the desert willow. The thin, winged seeds travel miles from the parent tree when winds howl across the desert.

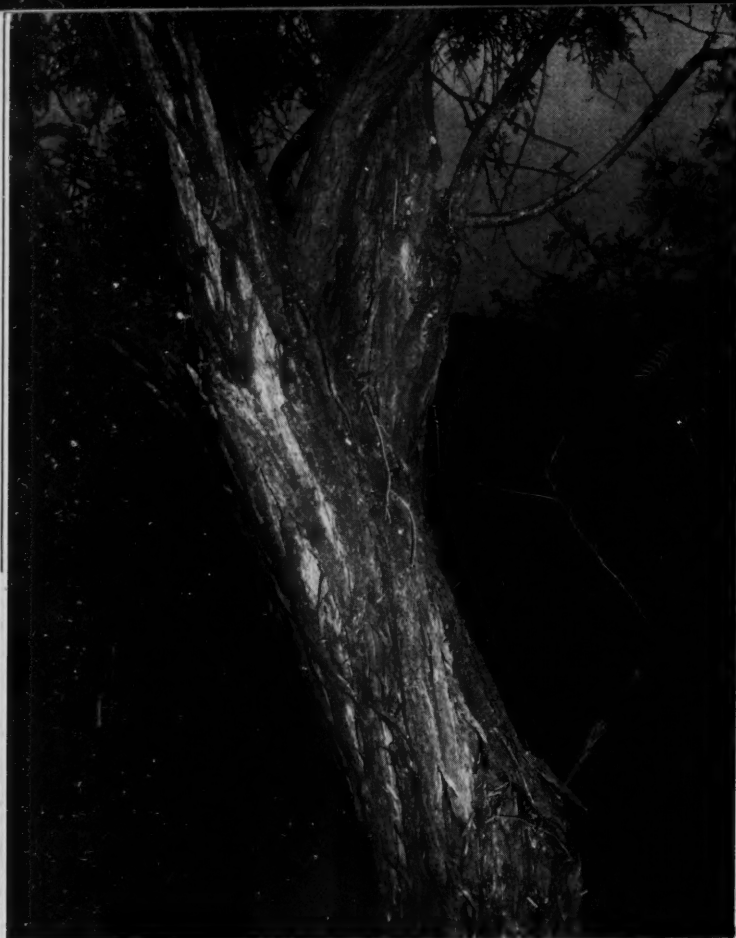


DESERT WILLOW

The pendant, smooth round pods of *Chilopsis* resemble the fruits of black-eyed beans, and are often a foot long.



The ivory-white, ruffled corolla, delicately streaked with pink, rose-orchid, or lavender inside the throat, resembles that of its relative, the catalpa tree. The flowers release a delicate, violet-like fragrance.



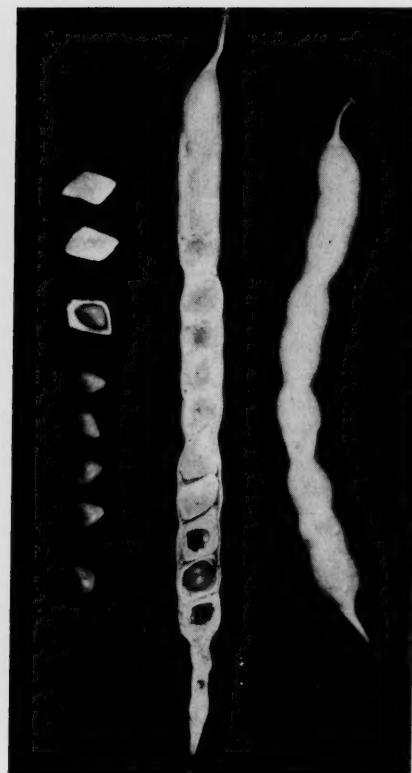
Mesquite bark has a ragged, shredded appearance.



Young pods of honey mesquite are flattened and twisted. Green or ripe, they furnish nourishing food for livestock and desert rodents.



An individual leaf with its many leaflets, a spike with numerous unopened buds, and another in full flower — details characteristic of the honey-pod mesquite.

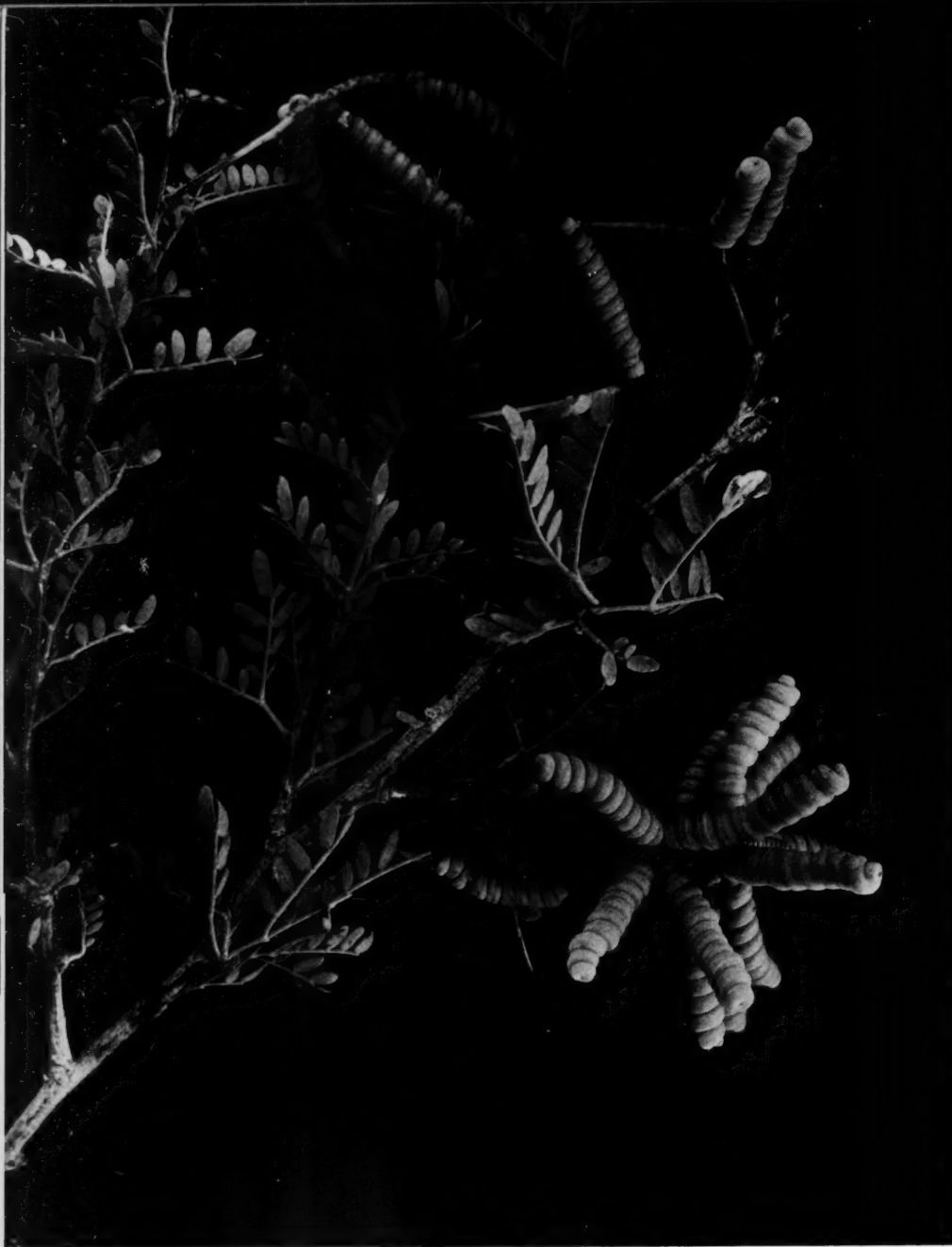


▲ (LEFT) The ripe seeds are an important source of meal for desert Indian tribes. Borings in the pod show that insects like the stuff, too.
(RIGHT) An intact mature pod; one split lengthwise; and the individual seeds surrounded by, and taken out of, their individual "cases." The material encasing each honey-pod seed is sugar-rich.

➤ Mesquite (*Prosopis juliflora* var. *glandulosa*) at Bitter Springs, along an old Spanish trail, in the Mohave Desert. The crown of this tree is 25-30 feet high, but spreads nearly twice as far. The honey-pod mesquite is an important indicator of underground water, growing best along washes.



HONEY-POD MESQUITE



Screw-bean mesquite (*Prosopis pubescens*). Closely related to the honey-pod mesquite, it is immediately known by its tightly coiled seed pods. The Spanish name *tomillo*, screw, fits it perfectly.

✚ The partially dissected pod in the middle (about twice natural size) shows how the seeds lie in a "spiral staircase." Nearly every ripe pod has a neat round hole from which a tiny beetle emerged.

SCREW-BEAN MESQUITE



CATSCLAW

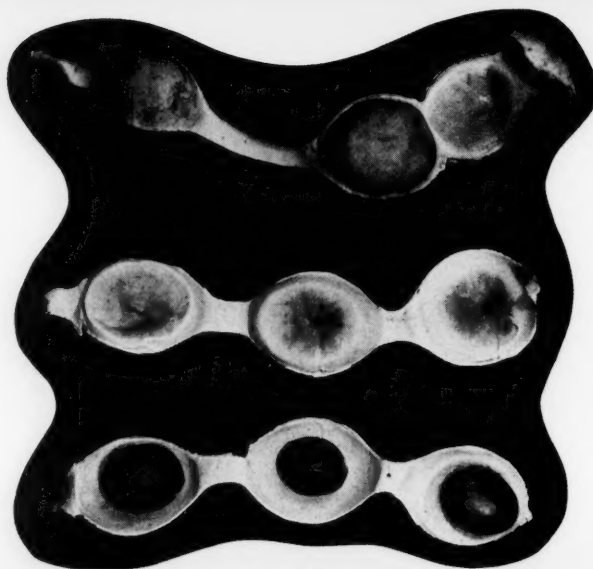
The pale yellow
woolly flowering spikes
of the catsclaw nearly
hides its merciless,
curved "claws."

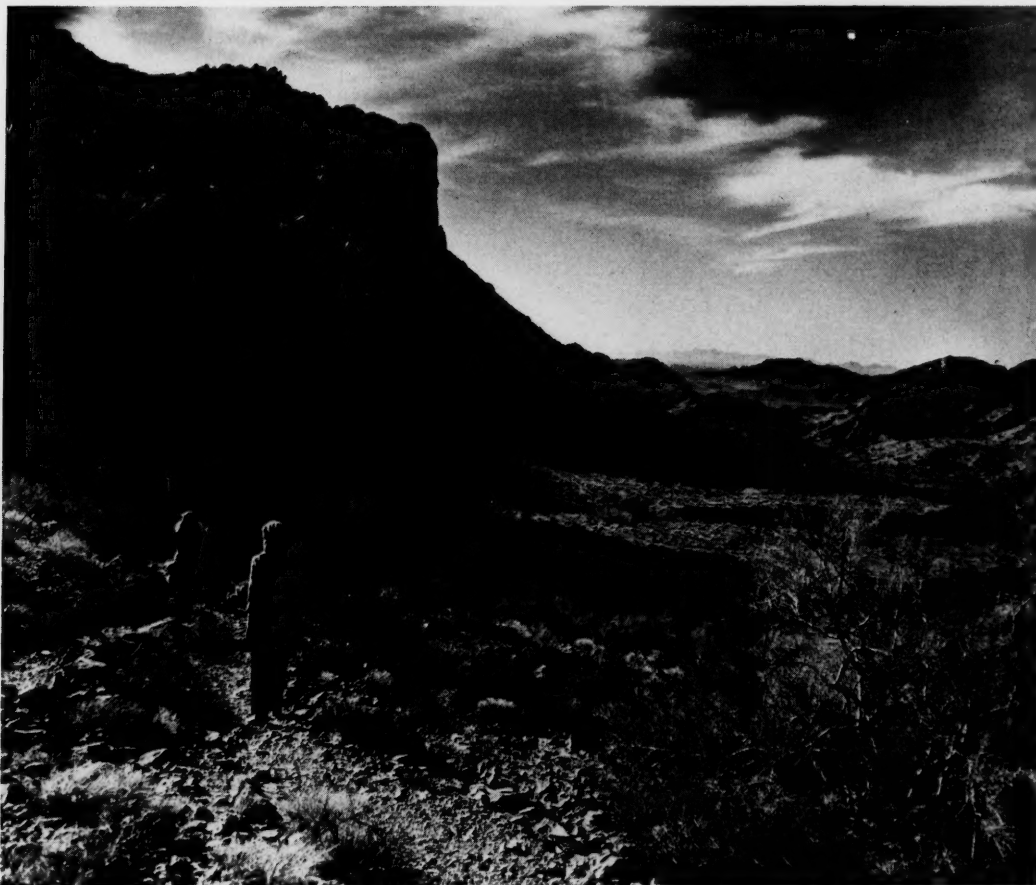


Catsclaw (*Acacia greggii*) in the
Arroyo Salada, Borrego Badlands.
This sprawling specimen shows the
typical irregular habit of growth
of most catsclaw bushes.



Pods of the catclaw are irregularly curled and before ripening turn dark red, especially along the edges and at the ends. Leaves partially fold together when drought threatens, and the younger ones regularly go through "sleep movements" at night. Even on young twigs the bark splits and shreds. The concentric markings on the dark seeds (RIGHT) are one of the trade-marks of this shrub.





Looking southward along an old Indian trail through the Plomosa Mountains near Quartzite, Yuma County, Arizona. There are palo verdes, chollas and saguaros in the view.

"What is a Desert Good For?" . . . To Go Into . . .

. . . OF ALL ANSWERS to the question "What is a desert good for?" "Contemplation" is perhaps the best.

The eighteenth century invented a useful distinction which we have almost lost, the distinction between the beautiful and the sublime. The first, even when it escapes being merely pretty, is easy and reassuring. The sublime, on the other hand, is touched with something which inspires awe. It is large and powerful; it carries with it the suggestion that it might overwhelm us if it would. By these definitions there is no doubt which is the right word for the desert. In intimate details, as when its floor is covered after a spring rain with the delicate little ephemeral plants, it is pretty. But such embodiments of prettiness seem to be only tolerated with affectionate contempt by

the region as a whole. As a whole the desert is, in the original sense of the word, "awful." Perhaps one feels a certain boldness in undertaking to live with it and a certain pride when one discovers that one can.

I am not suggesting that everyone should listen to the voice of the desert and listen to no other. . . . But I am suggesting that the voice of the desert might well be heard occasionally among the others. To go "up to the mountain" or "into the desert" has become part of the symbolic language. If it is good to make occasionally what the religious call a "retreat," there is no better place than the desert to make it. Here if anywhere the most familiar realities recede and others come into the foreground of the mind.

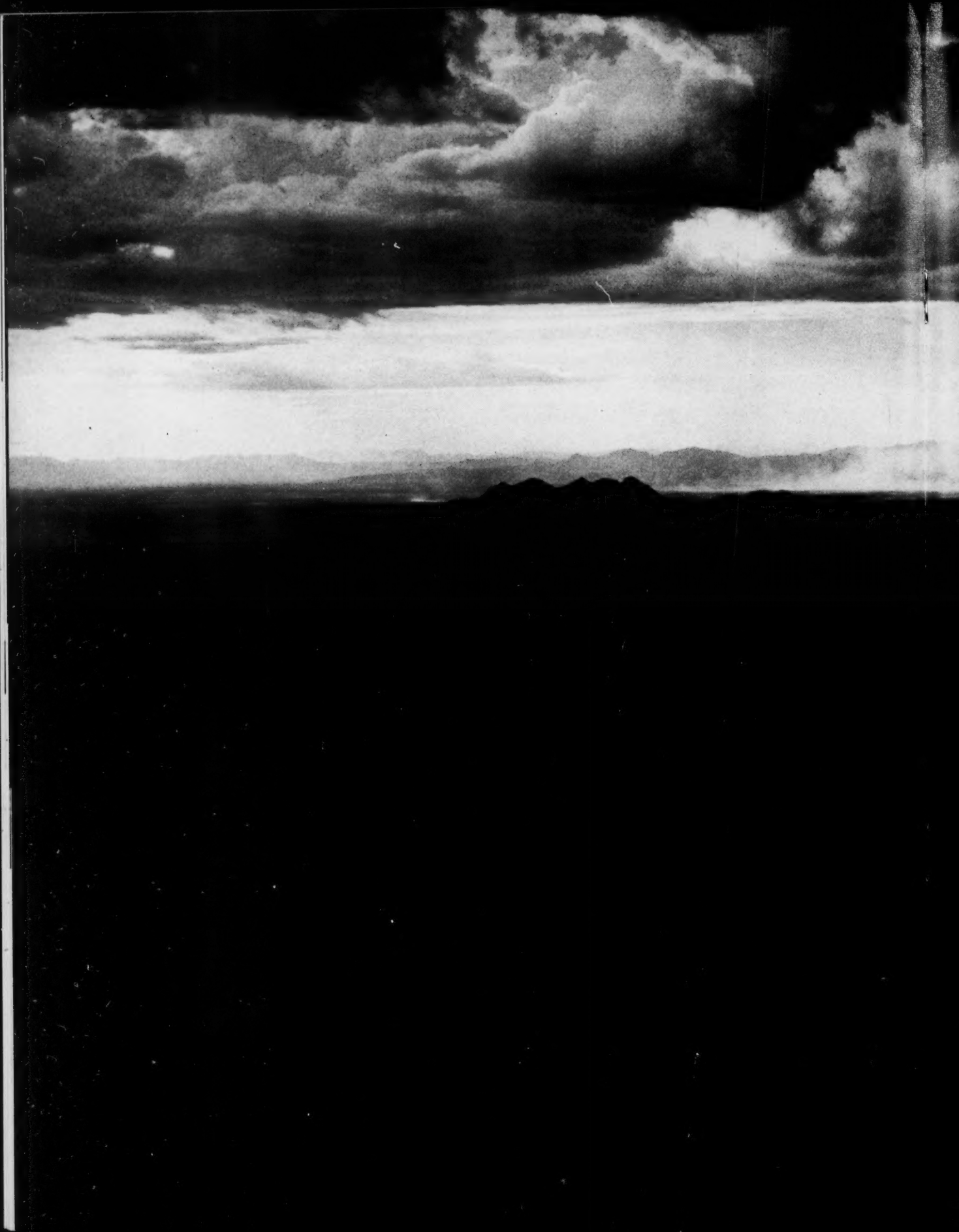
—JOSEPH WOOD KRUTCH, *The Voice of the Desert*

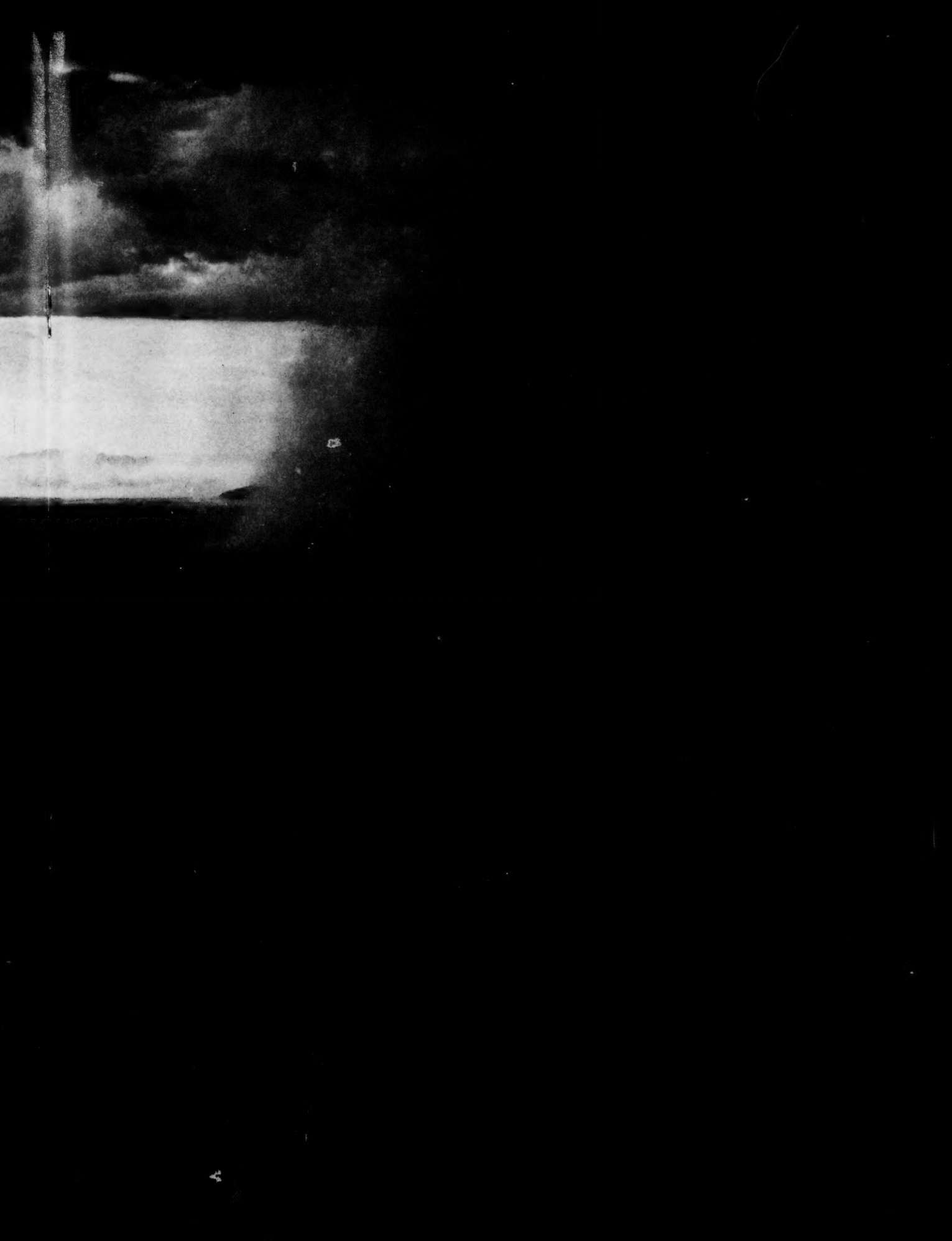
DESERT STORM (pages 16-17) — about half way between Yuma and Ajo in southwestern Arizona.

Taken from 8,000 feet looking northwest, late afternoon, September 7, 1949. Sand is blowing ahead of the storm, and hail whitens the desert floor next to the storm center. The ground temperature at Ajo was 106°F. Countless tree-dotted washes pattern the foreground.

15

Aerial Photograph by William A. Garnett ➤





PALO VERDE

A flowering branchlet of palo verde with delicate, crinkled yellow blossoms, unopened buds, and a young pod.

▼ Fruiting branch of the palo verde. Each pod usually has 2 or 3 seeds.



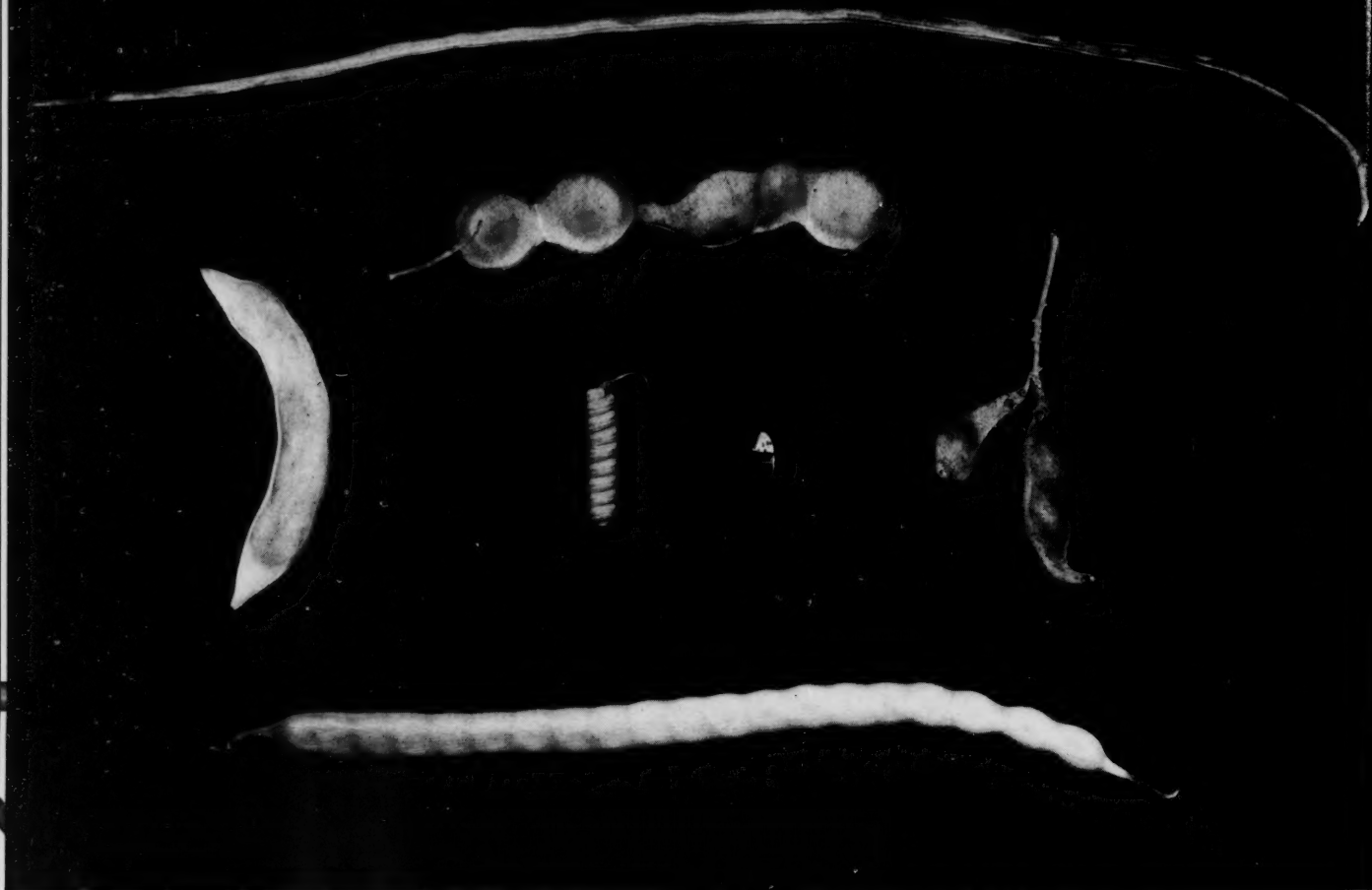


The bark of the palo verde is smooth with occasional rough patches.

Ψ A veteran palo verde along the old Beal's Well — Wiley's Well road in the Colorado Desert, southern California.



Opened palo verde pod, showing the dark brown seeds which are very hard when fully ripe, and often squarish in outline.



▲ Seed pods of seven desert trees: *top*, desert willow, catsclaw; *middle row, left to right*, palo verde, screw-bean mesquite, smoke tree, ironwood; *bottom*, honey-pod mesquite. (All reduced in same scale about one-third)

➤ Mature seeds: *top, left to right*, dark brown seeds of the palo verde, veined and ridged seeds of ironwood, concentrically marked seed of catsclaw; *bottom, left to right*, screw-bean, honey-pod, and bluntly beaked seed of the smoke tree; *center*, the fringed, flattened seed of the desert willow. (Enlarged; same scale)



Comparison shows similarities and differences among four members of the bean family pictured in these pages, with twigs, *left to right*: smoke tree, palo verde, catsclaw, ironwood.



Looking northward from Dripping Springs Mountains, Organ Pipe Cactus National Monumen, Arizona. The viewpoint is considerably higher than the desert floor below with its young saguaros, and palo verdes which are 15 to 20 feet high. The wide spacing of individual plants shows water scarcity.





Curved-bill thrasher nesting in cholla cactus. (Lewis Wayne Walker)

Museum in the Cactus

THE ARIZONA-SONORA DESERT MUSEUM

Lewis Wayne Walker

A FEW BUILDINGS, a tract of untouched desert, and a chance meeting of Arthur Newton Pack and William H. Carr about five years ago gave birth to Tucson's "Desert Museum." Now, a little more than four years after construction started, well over a half million people have learned about the desert at this unique institution 14 miles west of Tucson in the heart of the largest saguaro cactus forest in the country. On three sides it is ringed by the rugged Tucson mountains, and on the south by a sweeping plain that stretches across the Papago Reservation and on 60 miles to the Mexican border. A little to the right of south, rises Baboquivari, legendary mountain of the

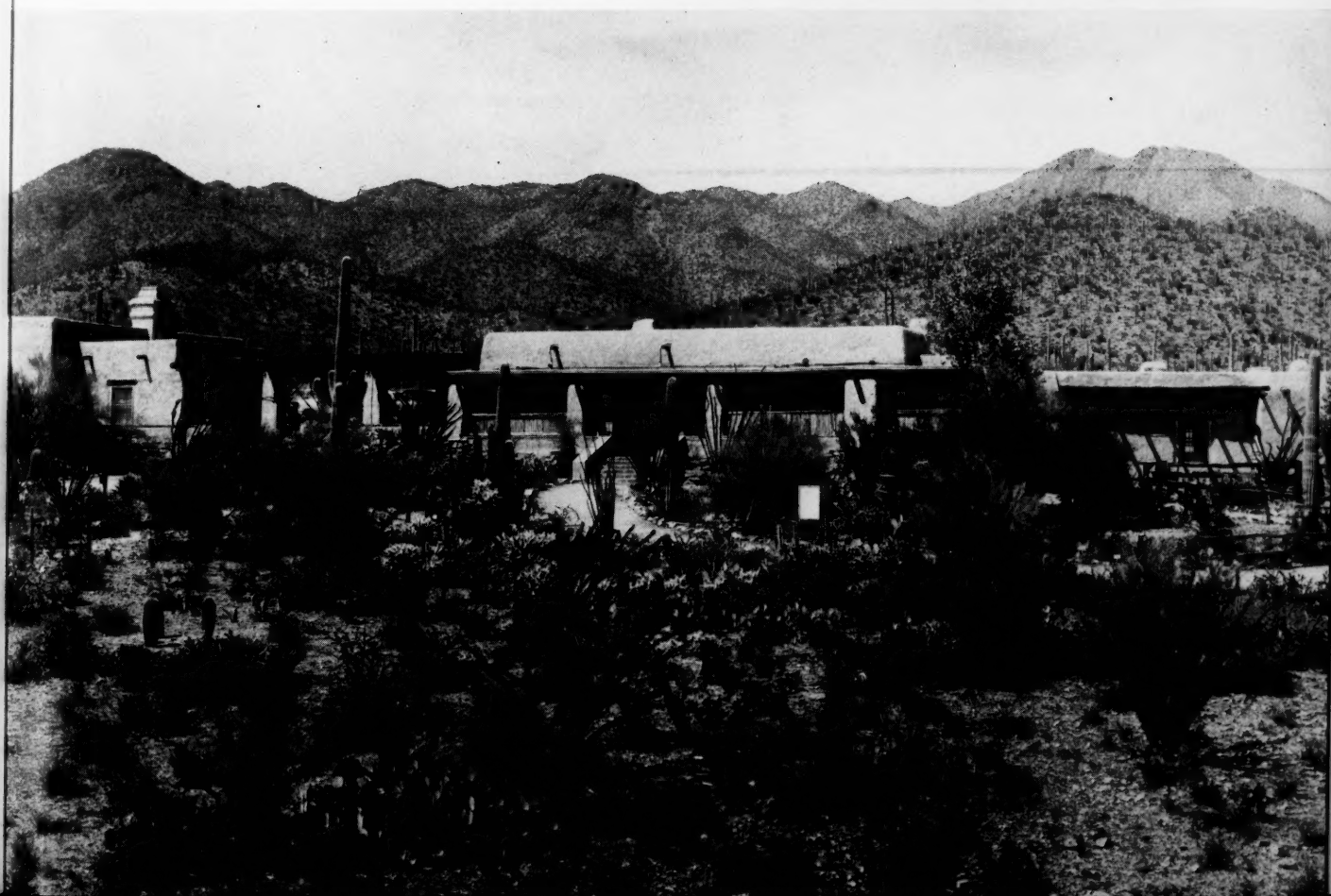
tribe, picturesque pinnacle and backdrop for sunsets which visitors call the most spectacular ever seen.

Within the buildings which are in the throes of growth and on the fenced desert surrounding them the stress is on the living, for despite the word "museum" most of the exhibits breathe, eat, and drink, under the care of a small staff of specialists on desert flora and fauna. William H. Woodin, Director, is a well-known expert on Arizona reptiles and has maintained a comprehensive collection of those found in this life zone. This not only entails the well-being of the large easily caged specimens but also the almost loving care of the

**A museum idea recently hatched out
in Arizona's giant cactus forest to bring
pleasure and knowledge on the spot**

tiny desert varieties so difficult to feed that they are universally shunned by larger institutions. Another series of living exhibits contains the common insects and arachnids of the region. Visitors spend as much time watching scorpions, tarantulas, and even cockroaches, as they do the larger animals such as bears, mountain lions, and jaguars, which are housed in a long line of adobe cages that blend with the desert terrain. Where possible the larger animals are raised from infancy and are encouraged to remain tame. George, our three-year-old mountain lion, reared by Willis Parker, wears a

In the Reptile Room. (Marvin H. Frost)





Mammalogist Mervin Larsen shows a group of youngsters a trailside cactus wren nest. (Lewis Wayne Walker)

collar at all times and is led on a leash for special Museum events.

The plant life of the area has been left natural and, aside from a few crosscutting trails labeled to inform the visitor of salient facts, it is just as it has been for centuries. Many Sonoran Desert plants, however, did not exist in the seven acres originally fenced, and to make the Museum grounds more comprehensive botanist Alan Blackburn has made repeated field collecting trips to other Sonoran areas. Now, as a result of transplantings there are groves of Joshua trees and boogums and a host of smaller plants, each set in a natural desert association.

This naturalness in place of the formalized gardens usually seen in botanical displays not only pleases the human visitors but also lures the wild birds to this protected spot. Gila woodpeckers, flickers, elf owls, cactus wrens, thrashers, and doves all nest on the grounds and the last three species have become so tame that they build their nests, incubate their eggs, and feed their young within inches of the busy trails. Some of the nests have strings and arrows to draw attention to their location but despite this advertising of objects that a single thoughtless act could destroy, the Desert



Night-blooming cereus — native to the garden. (Lewis Wayne Walker)

Museum has been entirely free from vandalism. This may be due to the varied signs along the trails which carry messages but are not stuffy or academic. One, purely facetious, is read and remembered, "Please do not feed, either food or fingers." Another reason for the lack of vandalism may be the Museum's distant location from Tucson. The visitors who drive the 14 miles of desert road really desire to learn about the country and are too busy gaining knowledge to stop and wastefully destroy.

When the Museum was first planned it was thought by some that a rigid specialty of Sonoran Desert lore would limit the scope, but quite contrary to this expectation each bit of research toward a new exhibit brings to light certain interrelationships which in turn offer challenges for other displays. The work will never be finished, for the Museum's horizons of the future are as varied as its sunsets. Thus the originality of Mr. Pack and Mr. Carr in conceiving and establishing a unique center where the general public could learn of the desert, is working. Each bit of information gleaned drives home some point that either touches on conservation or special adaptations that make life possible in this arid land.





Walls and ceiling are so even at the entrance that Clinton's Cave appears almost artificial. One of the cavers is standing in a collapsed archeological trench.

Clinton's Remarkable Cave

WILLIAM R. HALLIDAY

TODAY and every day on U. S. Highway 40 and on streamliners of the Southern Pacific and Western Pacific railroads, countless hundreds of travel-minded Americans whiz along the southeast end of the Great Salt Lake. Exclamations are common on sight of the fantastically twisted, up-ended strata of rock in the cliffs along the lake. Particularly impressive are the cliffs where the steep barren slopes of the Oquirrh (pronounced O'kweer) Mountains and the placid waters of the lake crowd the travelers into a narrow strip against the salt-rimmed beach. Yet few of the millions who have passed here beneath its blocky mouth are aware how near they have been to one of the world's most unusual caves.

Clinton's Cave is today visited only occasionally by those living nearby. To the few who know of its existence, it is only "the cave up there a ways," and the general public has never heard of it. To the speleolo-

gist, however, and to the scientists from several related fields, this is a cherished cave. To them, it is the site of the first real speleological studies in the Intermountain West, and a treasure house of rare and unique findings.

It may well be that the present apparent obscurity of the cave is only a routine part of the cycle which is evident in the history of man's familiarity with the cave. Certainly there is evidence that prehistoric man lived in it from time to time over a period of several thousand years. In the latter half of the last century, the cave was apparently well known to the early Mormon colonists. It is discussed in the reports of the three great scientific exploratory parties which followed this route shortly after the close of the Civil War — the Wheeler, Hayden, and King surveys — although not in the earlier Stansbury survey. G. K. Gilbert, in the Wheeler party, correctly recognized its origin by wave-



▲ The entrance to Clinton's Cave lies in a shadowed alcove, half hidden by weed-grown piles of archeologists' shiftings.

action and described the cave briefly but admirably. Dr. A. S. Packard, Jr., with the Hayden Survey, relates that the cave was owned by Jeter Clinton, then proprietor of the long-extinct Lake Point Hotel, and made a small but exciting biological collection within the cave.

Clinton's Cave seems to have then dropped from view. Gilbert's later, better-known works do not mention its existence, and only a passing reference in a 1909 thesis of the University of Utah is evidence that it was ever reconnoitered again until 1930. The Department of Anthropology of the University of Utah then excavated it under the direction of Julian H. Steward. By this time, the earlier studies had slid into oblivion, and when the Smithsonian Institution published Steward's report, it was under the name of Black Rock Cave. This was an unfortunate choice since at least three other caves are known within the Black Rock area. While later archeological reports list the cave under the rather cumbersome title of Black Rock I Cave, the earlier, simpler term *Clinton's Cave* is preferred by the Salt Lake Grotto (unit) of the National Speleological Society and others studying the cave today.

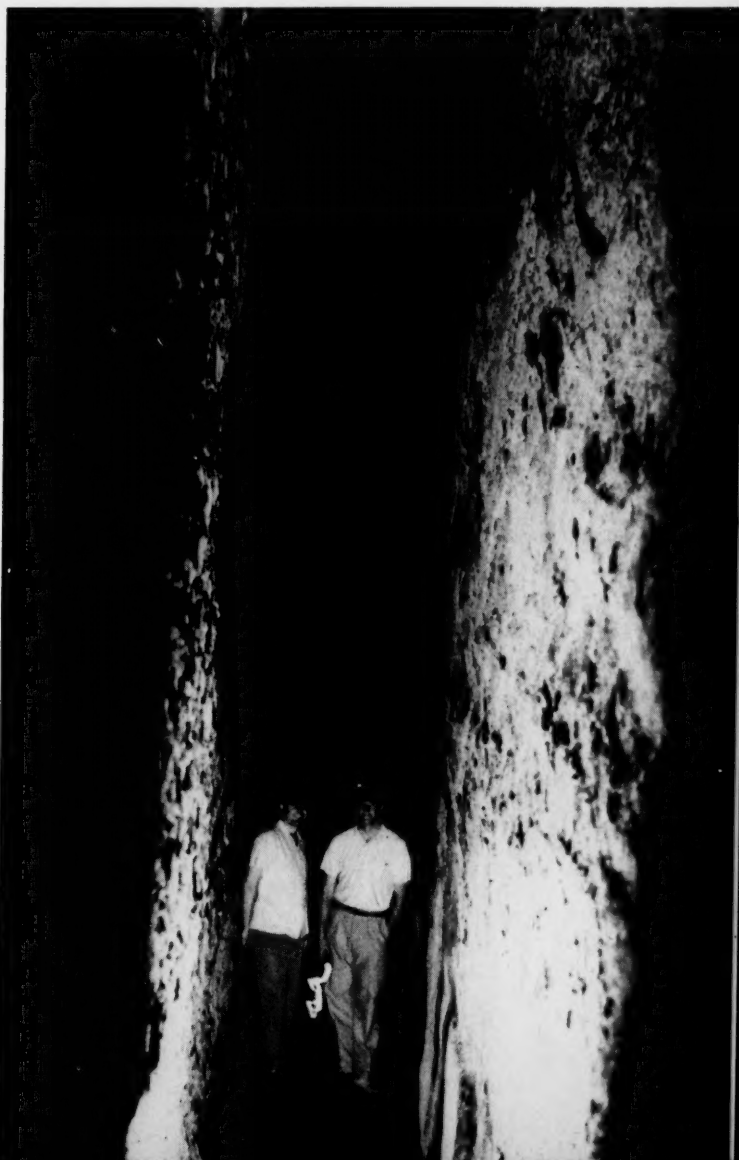
The importance of this fairly small cave stems from the multiplicity of its features of interest. Its archeological, biological, geological and historical features are equally remarkable, and even today are not com-

The rear portion of Clinton's Cave is surprisingly high and narrow.

SCIENCE LOOKS INTO IT

pletely known. Steward, for example, found that, while no trace of recent Shoshonean Indian habitation was present, nor the classical Basketmaker or Pueblo cultures, at least three distinct, primitive groups found shelter in the cave. The most recent is the "Promontory Culture," a quite ancient bow-and-arrow hunting group with little pottery, and apparently quite isolated from other culture groups. Deeper layers revealed a different tribe or culture characterized by peculiar quartzite dart points, of whom little else is known. Still an earlier culture was found in the lowest two feet of soil deposits, but Steward reported tersely that "it yielded too little to characterize it."

Excavations in caves just above the Bonneville Salt Flats to the west have yielded evidence of occupancy which has been dated by the Carbon-14 radioactive calendar to be over 11,000 years old. These caves, however, could have been occupied only after the waters of ancient Lake Bonneville fell nearly to its present Great Salt Lake level, while Clinton's Cave



would have been above the water many thousand years earlier. Since the caves were most likely to be occupied when close to the water's edge, it is just barely possible that Clinton's Cave may prove to be America's oldest known human habitation when checked by the radiocarbon calendar.

Clinton's cave is located on the barren northwestern face of the Oquirrh Mountains in north-central Utah, at the base of low cliffs at an elevation of about 4,560 feet. It faces northeast, almost parallel to the twisted adjacent mountainsides. Half-hidden by archeological siftings now eroded and weed-grown, its square entrance affords an inspiring view of the blue lake 360 feet below, with parts of the snow-capped Wasatch Range visible beyond bleak Antelope Island in the middle distance.

The parallel walls of the first hundred feet vary hardly an inch, and while it narrows and the west wall

shows some irregularities, the cave as a whole is perfectly straight for 308 feet. The final 17 feet has been offset three feet by a fault. Portions of the slick faces produced by the grinding of its rock surfaces are still visible. At the end of the offset, a soft shale can be seen. Removal of this shale by the pounding and grinding of the waves of the ancient lakes was the first step in formation of this unusual cave. Near the entrance, some of the more resistant beds have also been partially affected, resulting in the variations in width of the passage. It is thus obvious that even though the walls of Clinton's Cave are basically of limestone, this is no ordinary limestone cave, dissolved out of the bedrock by acidic groundwater.

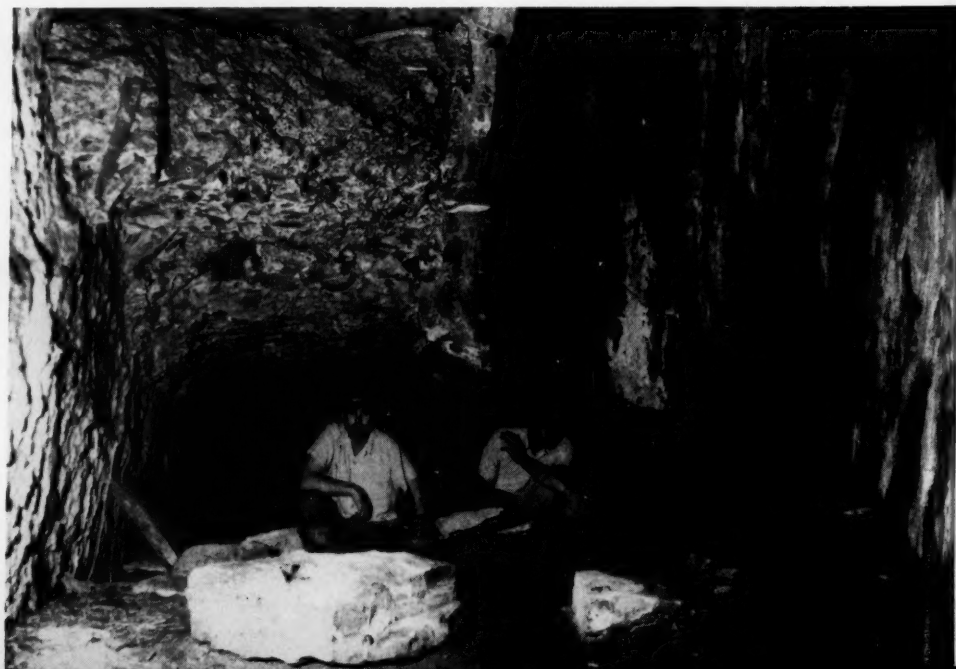
To the novice, observing that the waters of the lake are more than 350 feet below the cave, its origin in this manner may seem improbable. There is geologic evidence, however, that a lake or series of lakes up to 1,000 feet deep formerly occupied the great inland basin which drains into the Great Salt Lake. Several hundred feet above the cave can be seen the beach terrace formed by the waters of the lake at its highest level, called the Bonneville terrace. Lower is the even broader Provo terrace, marking the level of the lake after it cut a channel to the north and drained into the Snake River for thousands of years. Many small terraces, marking temporary halts in the evaporatory shrinkage still going on today, are visible on the slopes around Clinton's Cave.

The development of this cave has been permitted only by a fantastic triple coincidence. Here as in few places have the strata of the bedrock been turned completely on end by the movements of the earth. If they were in their original horizontal position, or only moderately tilted, the weight of the overlying beds would soon have collapsed the cave. Secondly, the occurrence of so thin a shale between layers of hard, solid limestones, which form a rigid framework for the cave, is not common. Third, suitable areas for the



▲ In the vicinity of Clinton's Cave the bedrock has been turned on end, twisted and faulted, and the softer beds have been washed out by the waves of ancient lakes and other types of erosion.

➤ Most of the different beds in which Clinton's Cave was formed are shown to the right of the "Duckunder." The conglomerate at the left takes the place of the original shale layer.



A desert invoice

The Voice of the Desert: A naturalist's interpretation. By Joseph Wood Krutch. William Sloane Associates, New York. 1955. 223 pp., 16 photos. \$3.75.

The initial impact and subsequent hold of our wilderness desert on one of our most urbane yet sensitive men of letters has been an interesting and fruitful phenomenon. Four years ago in *The Desert Year* Joseph Wood Krutch shared with us the wonder of his introduction to the Southwest, delighting us alike with his literary mastership, his philosophical insights, and his informed and informing views of nature which saw the grand whole in its intricate and marvelous detail. Now the voice of the desert has spoken to this erstwhile Columbia professor of literature so seductively and so urgently that he has quite happily — for himself and for us — yielded utterly to the spell of its absolute nature. He has quit Morningside Heights for a loftier summit of contemplation.

So here again is the philosopher-naturalist musing, often amused, but with mind organized, penetrating, and purposeful — his object, to grasp the myriad manifestations of life's triumph over one of the harshest of environments, the one of little water. He notes that one of the myriad which most anciently forsook water for dry air, the scorpion, succeeded so well 300 million years ago that his "brain stopped growing not long after he left the water and braininess had not got very far by then." If the scorpion evolved early to the point of pointlessness, there is something on the other hand to think about in the *Pronuba* moth that "goes through a series of purposeful actions which have no other function except to fertilize the flower [of the yucca] which could not be fertilized in any other way." Or in the kangaroo rat, *Dipodomys*, "the mouse that never drinks" but "manufactures his own water from the dry materials present in starchy foods."

Contemplation of these and many other examples of life's complete success in mastering an environment, of the

fundamental nature and causes of the environment itself, lead us inevitably to conclude with Dr. Krutch that here is no last stand, forlorn hope, or foredoomed failure. This is indeed a triumph of life, one of life's many roads to success. The more we think about this the less we should be inclined to consider the desert a condition of distress to be alleviated by wiping it out wherever possible.

Two chapters with provocative titles cap the book: "Conservation is not enough," and "The mystique of the desert." We have quoted at some length from the first on pages 2 and 3; from the second, on page 15. It is our hope that these words of Dr. Krutch's, out of context as they are, will send the reader forthwith to the book for a fresh and needed point of view on values in the desert as an idea and way of life which have profound meaning for today's man, prisoned as he is by his own inventions and all that is implied in his shaky ideal of unlimited material advancement. If we would go "up to the mountain" or "into the desert" to invite our troubled souls, we must first of all keep mountain and desert as nature made them. Scorpion and kangaroo rat have as much right to earth and sun as we. (The fine photos, it should be mentioned, are by our contributors Lewis Walker and Marvin Frost.)

The California Deserts. By Edmund C. Jaeger. With chapters by S. Stillman Berry and Malcolm J. Rogers. Stanford University Press, Stanford, California (Third edition) 1955. x + 211 pp., 29 photos, numerous line drawings, endpaper maps. \$5.00.

For 23 years this handbook by one of our leading California naturalists has gone to the desert with visitors, gone home with library borrowers, or otherwise fulfilled its function as a principal guide to the landscape and life of a fourth of our state. As nearly everyone knows, Californians point to the vast southeastern section of the state, comprising the Mohave and Colorado deserts along with Death Valley and the trough of the Owens River Valley at the eastern foot of the Sierra, with as much pride as to the

development and preservation of wave-cut or littoral caves are practically unknown away from the seacoast. Clinton's Cave thus may well lay claim to being unique in its geological history.

Actually, its development is even more complex. The roof of the cave is not the shale which was removed by the waves, but a conglomerate developed on the bed of one of the ancient lake series. This indicates that the cave was once a narrow wave-cut gully which was then filled with conglomerate during a re-submergence, and that the cave, as we know it, was excavated during a subsequent fall in the lake level. Furthermore, the undersurface of the roof conglomerate is almost flat after the first hundred feet, as if it itself had been eroded very little after its formation. Removal of some softer deposit on which it had been formed may thus have actually been primarily responsible for development of the cave itself. Beyond this point, the problem becomes confused.

In the field of biology, this remarkable cave has yielded several important gems. Tiny, inconspicuous

insects and snails have been the predominant native fauna, both in Packard's time and today. One type of millipede collected here by Packard had never again been found anywhere until 1954. A second specimen was then located by J. Robert Keller of the National Speleological Society and the University of Utah's Biology Department — in the same spot as the one collected more than 75 years earlier. Numerous other specimens have recently shed important light on interrelationships of the cave life of the West, and at least one other new species has recently been recognized during the lengthy process of zoological classification.

Clinton's Cave is not a beautiful cave. It contains no stalactites or stalagmites or any of the other myriad features which render most caves a delight to the viewer. It is, in fact, drab and a little boring because of its regularity. But to the person who has the understanding needed to unlock its secrets, Clinton's Cave fully deserves a place on the list of the world's great caves.

Sierra itself, the spectacular coast, or the fog-moist northwestern redwood belt. Of all these, the desert has long held in greatest measure the allure of the mysterious unknown.

Such an inviting and lucid book as *The California Deserts* removes the area from one's mental and emotional unknowns while stimulating one to make it personally known by going there. But penetrating the mystery — the origin of crystalline ranges and shimmering playas, of springs and grotesque erosion forms; the how of life with little water and the many varied examples evolution has produced; the climate pattern behind it all and the human kind that found a way of life here — not only does not remove the allure but makes it irresistible. If you are going to the desert this year and "missed" Dr. Jaeger's book in previous editions, put in on your "must" list now. (And don't forget his *Our Desert Neighbors* and *Desert Wild Flowers*.)

The author's charming drawings are still here; the 16-page photo section is new with this edition. Mr. Berry's chapter is "Snails and Other Mollusks"; Mr. Rogers', "The Aborigines of the Desert." This is not a guide to particular places or tours; it is a basic source book, in popular style, for an entire region.

Deserts. By Delia Goetz. Illustrated by Louis Darling. William Morrow and Company, New York. 1955. 64 pp. \$2.00.

A Morrow Junior Book, this expertly illustrated little item will introduce the 10-year-old to deserts of the world, their causes, their wild and human life, and their partial conversion to modern human uses. The story is well generalized, with examples from our own familiar Southwest as well as from the Sahara, Arabia, Australia, and even the Gobi and Atacama.

Two very good hemisphere maps show the world's deserts, as they are, largely in temperate latitudes; but the text slips: "The major deserts are near the equator; the sun's rays strike them almost directly." Let us hope an informed adult is these to catch this blooper as the 10-year-old comes to it — ten is not too young to puzzle at the non-jibing of text and map.

One shouldn't carp at a book for what it isn't, especially if it's mostly good as far as it goes. From a long background of teaching experience Miss Goetz has gone straight and simply into her subject; but by just reciting facts she may have left out the wonder. And she may leave young minds with the idea that deserts are just waiting for man to irrigate them and pump oil out of them to make them worth while — to man.

Caves and curiosities

Celebrated American Caves. Edited by Charles E. Mohr and Howard N. Sloane. With a Foreword by Alexander Wetmore. Rutgers University Press, New Brunswick, New Jersey. 1955. xii + 339 pp., nearly 100 photos, 9 drawings, 6 maps. \$5.00.

Explorers of land and sea have covered about everything in sight, it seems; so (not counting the young hopefuls in space suits), the fraternity has exchanged pith helmet and yachting cap for aqualung and miner's lamp. Exploration has gone underground (and under water) — for geographical, not ideological, reasons.

Old-time cavers may double-take the title here, but this is not a reprint or rehash of Hovey's *Celebrated American Caverns* of 1882. It is, however — so say the editors — the first book to cover the story of American caves since Hovey and "is long overdue." With National Speleological Society sponsorship and editorship, the Rutgers imprint, and the blessing of the Smithsonian Institution, this is presently the book for what's going on in the American underground. Naturally *PD* is pleased and proud to count an author in this issue, Dr. William R. Halliday, among the book's 15 speleologically (and sometimes also otherwise) eminent contributors.

The 24 chapters of this book take us to some of the most beautiful scenes and on some of the most thrilling adventures ever experienced on this continent. Some of the underground scenery — in Mammoth, Carlsbad, and other mass-visited caverns — has been viewed by thousands or millions. Many of the most entrancing cavern chambers known have been seen by only a handful, or even one explorer whose personal discovery is his alone till others follow his tortuous route perhaps through winding crawlways with openings under water, and such like things not for the squeamish or claustrophobic. (One thing is stressed above all else in this authoritative book: safety. Since the tragic and needless death of that greatest of solo cavers, Floyd Collins, which made national headlines in 1925 and is grippingly retold here, the day of the lone cave explorer is — or should be — done. The second thing stressed is conservation: never destroy or disturb any natural feature of a cavern, it may be of unique esthetic or scientific value.)

The fragile beauty of cavern crystals and formations is well known. Fewer people perhaps know of the exceedingly fruitful fields of scientific study cave exploration has opened up, with emphasis on geology, animal life, and archeology. These facets of caving come into full play in many chapters of the book. There are also fascinating, sometimes gruesome items from history — the story of the Leather Man is a gem; and "The Cave in Rock Murderers" will freeze your blood. Bats, which are inescapably prominent in these pages, give rise to one of the once-secret stories of World War II, the project to set fire to Japan by a "bat drop" of chiropteran arsonists which only the A-bomb stopped from being carried out.

There is not space even to hint at the many well written chapters of cave exploration, but certainly one of the most challenging to the imagination is Dr. Halliday's account of aqualung discovery in water-filled Devil's Hole Cave beneath "the Miners' Bathtub" in Death Valley National Monument.

With an estimated 30,000 caves in the U. S. alone, speleology is a young science with a large future; intensive exploration of this ingrown frontier has only begun. (Crown Publishers have announced for May *Exploring American Caves* by Franklin Folsom — the present book should give many readers a taste for more of this kind of thing.)

Salamanders and Other Wonders: Still more Adventures of a Romantic Naturalist. By Willy Ley. The Viking Press, New York. 1955. x + 293 pp., drawings, maps. \$3.95.

Some full-time residents of the underground, various insects, fishes, and salamanders, have lost sight, even eyes, through atrophy. The last mentioned, amphibians with the

title role in the latest book by the author of *Dragons in Amber* and *The Lungfish, the Dodo, and the Unicorn*, have stirred in other than scientific circles. Ley's current exposition of natural curiosities and mysteries opens with the improbably titled chapter "Cave Salamanders and High Politics." The olm and the axolotl ran like an obscure thread through the period when modern methods of observation and experimentation were freeing the natural sciences from the shroud of mythology; showed increasingly in the emergent pattern of evolutionary theory; and in our own century became pawns in an amazing cloak-and-dagger plot to advance the incredible "unscience" of Marxist label — where-in were involved a crazed Austrian fellow-traveler, the Russians Mitchurin, Lysenko, et al., and the doctrine of inheritance of acquired characteristics.

The rest of this, to the reviewer completely delightful and absorbing book — such is Willy Ley's witty wisdom — delves into such intriguing matters as pygmies (human); abominable snowmen (there's evidence that can't be kicked aside); the non-human use of tools; a "botanical interlude" to look into the fabled manchineel or "tree of death" and the "man-eating tree of Madagascar" as well as the thoroughly respectable if long mystifying coco-de-mer; giant tortoises of Aldabra and Galápagos; the sea otter in its recent history of near-extirpation; and many other morsels from an exotic natural history bill-of-fare.

DISCOVERY IN BOOKS

On discovering history

From an Antique Land: Ancient and Modern in the Middle East. By Julian Huxley. Crown Publishers, Inc., New York. 1954. 310 pp., 66 photos (27 in full color), 3 maps. \$6.00.

Travel Into Yesterday: An Account of Archaeological Journeying through the Plain and the Rough Places of the Roman Province of Cilicia, in Southern Turkey. By Mary Gough. Doubleday & Company, Inc., Garden City, New York. 1954. 305 pp., 38 photos, endpaper maps. \$4.50.

The Secret of the Hittites: The Discovery of an Ancient Empire. By C. W. Ceram. Translated from the German by Richard and Clara Winston. Alfred A. Knopf, New York. 1956. xxii + 281 + x pp., 48 halftone plates, 64 line drawings and maps. \$5.00.

Rome Beyond the Imperial Frontiers. By Sir Mortimer Wheeler. Philosophical Library, New York. 1955. xii + 192 pp., frontis., 38 halftone plates, 19 text figs., inset map. \$7.50.

Topsoil and Civilization. by Tom Dale and Vernon Gill Carter. University of Oklahoma Press, Norman. 1955. xvi + 270 pp., 27 photos, 6 maps. \$3.95.

"The word *History*," Julian Huxley says in the Introduction to his book *From an Antique Land*, "is one of those general semantic omnibuses which convey a number of different meanings to a number of different destinations." As a biologist journeying in a region layered thicker with human history than any other, Professor Huxley would find an approach to history which accounts for man as an evolving animal species with a difference: "The key is provided by the idea of evolution, but the lock must be sought for

among the properties of humanity: and if so, the philosophy we are in search of will be one of evolutionary humanism." Assuming the possibility of "a comprehensive and objective view" through the humanities, "the general aim of history is to record the progress made by the various segments of our species in realizing human potentialities."

In the course of official traveling as Director-General of Unesco, and between conferences, Dr. Huxley covered the Middle East from Egypt to Iran to Turkey. The journeys into the past he describes here were, however, asides from the line of duty. Given this opportunity, he saw it, then, as a duty and privilege "of man to testify to his experience, to bear witness to the wonder and variety of the world in which he finds himself." His view of history permits him to sum up the experience in this thesis: "The Middle East, perhaps more than any other region, demonstrates the mingled splendour and horror of human history, with the slow and painful surge of progress behind its superficial transformations."

From an Antique Land is not to be labored through under the weight of a ponderous thesis, however. It is first of all one of the most captivating travel books of recent years, in which your tour-guide is a witty and urbane gentleman, who just happens to have one of the most incisive and informed minds of our time. If you can not hope to see Petra, Palmyra, or the Pyramids in your life, the next best thing is a Julian Huxley to turn the pages of history and recreate the heyday of empire for you.

Page by page the history of this antique land, the Middle East, is becoming legible, as the pages — or layers — are turned by the archeologist's spade. One of the partially read chapters has to do with the far corner of the Mediterranean where Turkey and Syria meet. There on the littoral of Asia Minor the ancient Roman province of Cilicia lay under its farm-girt rock bastions. Modern Turkish farmers find "written stones" in their fields — the Latin inscriptions are indeed pages of history. What it is like to dig, measure, map, and interpret, year after year in one rich area, to an archeologist — rather, to an archeologist's wife — is freshly and humorously told in Mary Gough's *Travel Into Yesterday* (to which Michael R. E. Gough of the University of Edinburgh has attached an Historical Appendix). That Mrs. Gough's narrative of the digging years concerns in large part the daily getting along with the very much alive present population, points up the continuity of human ecological tenure on this land — it has been traced back three thousand years and more to the Hittites (who were preceded in turn by "an advanced neolithic culture").

No writer has done more, surely, to stir up popular interest in this business of writing history with a spade than the pseudonymous C. W. Ceram with his best-selling *Gods, Graves, and Scholars*. In that the author hinted at big stories yet to break, having in mind, among other things, *The Secret of the Hittites*. About 75 years ago an Irish missionary, Wright, and an English biblical scholar, Sayce, set a storm of controversy in motion by asserting, each on the evidence of his own studies, that the Hittites, mentioned in the bible as a minor tribe up Syria way, appeared indeed to have been a powerful nation. So the story began to build up as archeologists went into central Turkey to scout rumors of mysterious stone carvings and undecipherable inscriptions. A startling break came in 1915 when

Slips 'n' ships

EDITOR, *Pacific Discovery*:

The informative article on *Burro or Bighorn?* by Philip Ferry, in your November-December [1955] issue erroneously gives credit to me for the three photographic illustrations.

About two years ago I rounded up a collection of photographs for Mr. Ferry's article from various National Park Service sources. A few were taken by myself but the majority were taken by other members of the Service. Of the

three pictures actually used, I believe the Burro group was taken by the late Joseph Dixon and the other two (probably) were taken by former Park Naturalist Russell Grater of Lake Mead.

The possibility of such unintentional errors is one reason why the preferred credit line in such cases is just "Photographs courtesy of the National Park Service."

LOWELL SUMNER, *Biologist*

Sequoia and Kings Canyon National Park

Three Rivers, Calif., 18 January 1956.

the Czech linguist Hrozny announced that the transliterated Hittite script revealed an Indo-European language. Final proof of the greatness of the long-flourishing Hittite empire has come only since World War II and Ceram's earlier book. Again, Ceram has done a masterful job of dramatizing the real-life detective story of archeological research (as we go to press, *The Secret of the Hittites* is a San Francisco — at least — best-seller).

A later chapter in the history of antique lands and ancient empires is told in more matter-of-fact style but with great intrinsic interest by Sir Mortimer Wheeler in *Rome Beyond the Imperial Frontiers*. As professor of the archeology of the Roman provinces in the University of London, Wheeler is dealing mainly with pottery, glass, coins, and such lasting hardware as turns up from western Europe to eastern Asia as evidence of Roman commerce with the outer world (he draws also upon certain documents, among which the *Periplus of the Erythraean Sea* we find especially intriguing). The story here is the perennial human one of re-

ciprocal demand for raw materials and manufactured goods, e.g., Roman glass and Indian pepper.

The continuity between antique and modern lands in terms of human use and abuse is soberly documented in a book deserving fuller consideration in future for its chief import, *Topsoil and Civilization*. But Tom Dale and Vernon Gill Carter give something pertinent here by way of reflection on the causes of decline in ancient — and therefore not improbably modern — civilizations. Consider their title, and look at our own dust-bowl lands. . . . D.G.K.

For the rockhound's pocket

Rocks and Minerals of California and their stories. By Vinson Brown and David Allan. Naturegraph Company, San Martin, Calif. 1955. 120 pp., 48 photos in full color, numerous text figs., 51 sectional maps. Paper, \$2.75; cloth, \$3.75.

California rock and mineral students and collectors have waited long for a handy guide to the state that is "blessed with probably the most wonderful variety of rocks and minerals of any" in the Union. Here it is, especially designed to get the beginner off to the right start.

The Minerals section begins with physical tests, then takes up identification by the alternate-choice key method, which is easier than it may at first appear to one unfamiliar with such keys. Then come such readable chapters as "Stories of California Minerals," "The Nature of California Rocks," and "Brief History of California Rocks," followed by a key to the common rocks. After the section of color plates are the 51 sectional maps with their key map of the state. These are to show where the most interesting and extensive deposits are to be found, though of course their scale does not mean you can walk to an exact spot, reach down and pick up the crystal or rock indicated by the number!

A bibliography and index complete this excellent little book which has already sold in a few weeks more than half its first large printing — proof of a demand for it.

Antique land of the living

The Hopi Indians: Their history and their culture. By Harry C. James. Illustrations by Don Perceval. The Caxton Printers, Ltd., Caldwell, Idaho. 1956. 236 pp., 63 photos, numerous decorations in line. \$5.00.

It is a pleasure to note this attractive book, received as we go to press, by our editorial contributor to this issue. Harry James writes about the Hopi from long personal acquaintance with and strong affection for these Americans of ancient lineage. Dr. F. W. Hodge, director emeritus of the Southwest Museum, "cordially commends" the book to both student and tourist.

For Spring:

The Wild Flowers of California

by Mary Elizabeth Parsons

illustrated by Margaret Warriner Buck

published by California Academy of Sciences

California is now bursting with wild flowers, and you'll find them all in this handsome guidebook: their names, their haunts, and their habits. Full-page drawings of 150 flowers, 6 striking color reproductions, 529 pages of text.

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EDITOR, *Pacific Discovery*:

I always enjoy reading *PD*, and invariably find many things of absorbing interest in it. As one who has spent many years doing some sort of exploring among the Pacific Islands, I perhaps appreciate your magazine more than most of its readers.

Your authors have a first-hand knowledge of their subjects and are very rarely amiss in their facts. However, Dr. Ingles has pulled a boner when he states that the "ancient Mayan civilization" had anything to do with the development of oranges ["Meat for Mayan Tables," *PD*, Jan.-Feb. 1956, p. 4]. I have been a student of the origin of cultivated plants for many years and have paid special attention to the food plants originated in the Americas and their distribution throughout the world after the discovery of America by Europeans. No oranges were known in the Americas until they were introduced by the Spanish and Portuguese. The presence of wild oranges is no criterion. Wild oranges occur in a number of places where no one, not even the native people, regard them as indigenous.

It may be of interest to note that we once had a dugong in captivity in Manila in 1918. It was taken at the island of Mindoro and was brought to Manila, where it lived about two weeks. It was eight feet long. Dr. E. H. Taylor, now of the University of Kansas, but at that time with the Bureau of Science, was in charge of the project.

ALBERT W. HERRE, *Curator of Fishes*

School of Fisheries

University of Washington, Seattle, 1 February 1956.

We are still wondering why more readers didn't call us on this one. We thank Dr. Herre for seeing orange while he read, and invite him to tell of his own explorations.



EDITOR, *Pacific Discovery*:

I was very pleased to receive your Christmas Card and interested to see that you reproduced the ship from the title page of our Columbus Atlas.

The original appears as a decorative ornamentation on an old map of the British Isles by Abraham Ortelius, dated 1595.

R. G. BARTHOLOMEW, *Director*

John Bartholomew & Son, Ltd.
Edinburgh, 16 January 1956.

Pacific Discovery and sailing ships of Magellan or Drake vintage seem to go naturally together. Thanks to Mr. Bartholomew for the source of this one, which we consider particularly evocative of the age of discovery. We used it in our Christmas book section, 1955, and on our GIFT SUBSCRIPTION CARD (advt.), good any season.



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